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Generating Decision-Making Hypotheses: An Exercise in Critical Thinking to Select Appropriate Slopers for Flat Patternmaking Bodice Designs

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Key words: Hypotheses, decision-making, flat patternmaking.

Innovative Strategy

The innovative strategy was to introduce students to the concept of generating decision-making hypotheses. This would teach students a method of critical thinking to utilize when deciding the appropriate slopers to use in creating basic or original garments. According to Senn, Rutherford, and Marzano (2014, p. 5), critical thinking is vital to the career success of students, and critical thinking in the classroom "prepares them for a lifetime of being able to identify critical information." There is an educational gap in teaching students critical thinking skills (Craig, 2016; Head, 2016). Students in the current flat patternmaking course learn to draft basic slopers through instructor-led demonstrations. These slopers are used later in the course to create patterns for original designs. Identifying the correct sloper with which to start a pattern for a new design is a critical skill.

Purpose

The purpose of incorporating decision-making hypotheses generation in the flat patternmaking class was to facilitate critical thinking for pattern design. Decision-making necessitates "making a prediction and weighing that prediction against other possible alternatives" (Marzano, Norford, Paynter, Pickering, & Gaddy, 2001, p. 219).

Implementation

First, the instructor presented a lecture on Dart Manipulation. Then, decision-making hypotheses generation was introduced to students as an in-class exercise. The instructor introduced the concept with a brief explanation of decision-making hypotheses generation. Then the instructor modeled hypotheses generation for decision-making by giving students a general example:

> Generating a decision-making hypothesis for taking out the trash (chore) on a weekly basis. Possible hypotheses below:
> If you take out the trash on a weekly basis, your apartment might smell better?
> If you take out the trash on a weekly basis, your apartment might look cleaner?
> If you take out the trash on a weekly basis, you may feel less stressed?

Then the instructor explained hypotheses testing to the students by stating "To test these hypotheses, you would need to take out your trash on a weekly basis and document/write notes about your observations and feelings". The instructor then asked: "Would you be able to prove your hypotheses?" Next, the instructor provided a context-specific example. Students were referred to specific pages in the patternmaking textbook (Joseph-Armstrong, 2010) and allowed time to practice hypotheses generation about the appropriate sloper to use in two scenarios:

> **Scenario 1:** You want to design a bodice with a French dart (p. 79). Think about the sloper you will need to create this bodice. Generate a hypothesis.

Prompt 1: If I want to design a French Dart bodice, I am most likely to use a _____ sloper.
Answer 1: a one-dart bodice sloper.

Scenario 2: You want to design a bodice with a Mid-Armhole and Waist Dart (p. 93). Think about the sloper you will need to create this bodice. Generate a hypothesis.
Prompt 2: If I want to design a Mid-Armhole and Waist Dart bodice, I am most likely to use a _____ sloper.
Answer 2: a two-dart bodice sloper.

Then, students were given a handout with a prompt to practice generating decision-making hypotheses for bodice dart manipulations of their own choice.

Scenario 3 (students' choice): You want to design a bodice with a _____ dart. Think about the sloper you will need to create this bodice. Generate your own hypothesis.
Prompt 3: If I want to design a _____dart bodice, I am most likely to use a _____ sloper.
Answer 3: student will provide their own answer.

Description of Effectiveness and Future Plans

The instructor observed the effectiveness of decision-making hypotheses generation in the class. After practicing with the given prompts, students were required to account for their answers when called upon by the instructor. After the class period, the instructor assembled an inventory of the handouts to evaluate student comprehension and application of decision-making hypotheses generation. Students stated that generating decision-making hypotheses helped them to think more critically about their patternmaking and the ideas they had for future projects. Other students comments included: "…it really made me think about the process of manipulating darts, instead of just going through the motions," "dart manipulations is coming easier to me when we do these activities and it helps to visualize," "It can help you see a solution to a problem," and "Generating a hypothesis can be useful when thinking through how you want to manipulate your slopers into original designs."

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